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# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

6898

November 18, 2015

Steve Schnoor  
Kennecott Utah Copper LLC  
4700 Daybreak Parkway  
South Jordan, Utah 84095

Subject: Review of Amended Notice of Intention to Commence Large Mining Operations, Kennecott Barneys Canyon Mining Company, Barneys Canyon Mine, M/035/0009, Salt Lake County, Utah

Dear Mr. Schnoor:

The Division of Oil, Gas and Mining has reviewed two submittals. One was received September 23, 2015, and the other on October 8, 2015. The attached comments will need to be addressed before the Division can approve these submittals as part of the Notice of Intention to Commence Large Mining Operations (Notice).

After the notice is determined technically complete, the Division will request two clean copies of the complete and corrected plan. Upon final approval, the pages will be stamped accepted or approved, and one copy will be returned for your records.

The Division has the following general comments:

- Please resubmit the "Request for Approval to Construct" from DEQ after their requested changes have been made and the document is finalized with DEQ. The Division will then place the completed construction drawings in the Appendix of its Notice.
- The Division may have additional comments based on the review responses.

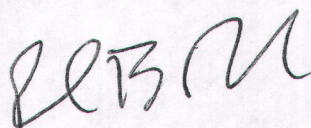




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Steve Schnoor  
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The Division will suspend further review of the Notice receiving your response to this letter. Please contact Leslie Heppler at 801-538-5257 or me at 801-538-5261 if you have questions about this review.

Sincerely,

A handwritten signature in black ink, appearing to read 'PB Baker', written in a cursive style.

Paul B. Baker  
Minerals Program Manager

PBB: lah: eb

Attachment: Review

cc: Woody Campbell, Brian Hamos, and Doug Bacon, DEQ (WWCampbell@utah.gov, BHamos@utah.gov, DBacon@utah.gov)  
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**REVIEW of Submittals**  
**Kennecott Barneys Canyon Mining Company**  
**Barneys Canyon Mine**

**M/035/0009**  
**November 18, 2015**

**General Comments:**

Comm ent #	Sheet/Pa ge/ Map/Tabl e #	Comments	Initi als	Revie w Actio n
1	Cover ltr Page 2	Second bullet – It is not known what compactive effort is going into buttress fill. Is it as per embankment? If so, refer to specification, i.e. “as per specification 02056” which includes density and moisture, or include language such as, buttress material will placed as embankment. If this is the intent then fill needs to be included “buttress fill as per plans” - modify Spec 02056 under 1.1 A. and cover letter.	lah	
2	Cover ltr Page 2 Bullet 5	Typo: 2.5:1 should be 2.5H:1V.	lah	
3	Cover ltr Page 2 last para	As written, “...average depth of approx 1meter.” Rewrite to “...average depth of approx 1meter and a minimum thickness of 0.* meter.” Include English units in parentheses as per the first bullet on page two of the cover letter.	lah	
4	Figure G-02,03	The figure is difficult to read. Please gray out major contours or increase line thickness on new construction.	lah	
5	Figure G-02	(Stamped drawings only) Add olive green color to legend.	lah	
6	Figures G-02,03	Fence line is shown open in the southeast corner of the project.	lah	
7	Figure G-02	Please show if any new sediment traps will be constructed. This may be done on Figure G-02, in a note in the SWPPP, or in the text.	lah	
8	All GR*- *	On all plan profiles, sections, cross section views, and elsewhere as appropriate, include the H:V on all slope call outs.	lah	



Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	GR3-02	Remove the north arrow and scale bar, as they don't apply to the profile and section.	lah	
10	BC-0*	Include the H:V on all slope call outs.	lah	
11	Figures RC	Where are the drawings for the other borrow areas? 02,07, 09, 01A & 01B.	lah	
12	Figures BT-all	At what stage of construction will the guardrail (shown on DT-01) be removed? What specification applies? Will the guardrail be disposed of offsite? This also applies to the notes on the fencing.	lah	
13	Figure BT1-01	As per note 6. It is difficult to see location of check dam on the sheet as is noted. This applies to all BT*-01 sheets.	lah	
14	Figure BT1-02	More detail is needed on Borrow area 08 <b>and</b> the liner, such as the purpose and need.	lah	
15	BT1-03	More detail is needed what is below HDPE liner. This applies to all BT*-03 sheets.	lah	
16	BT5-02	Fine grained material is shown on the typical as being open ended. It should show keying into the leach pad on the right side. Also the check dam is shown on plan view 02 but is not included in the legend.	lah	
17	DT-01	It is not clear where Typical 01 and 02 are in relationship to the plan set.	lah	
18	DT-02	Check dam should have some sort of weir or depression in the middle to act as a weir to minimize erosion at the edges.	lah	
19	DT- all	Buttress is shown as "clean fill" in the legend, but on details it is also called "buttress". Terms should be consistent.	lah	
20	Specs	Specifications should be labeled as either Special Provisions, Modifications or Standards.	lah	
21	Spec 01455	Add Utah Administrative Code under 1.3, as OGM is noted under 1.9D.2.	lah	
22	Spec 01571 Sec. 1.4 Definitions	Please include definitions for "stilling basin" and "detention pond." Definitions should describe the intended function of each. These terms are often confused with "retention basin," "settling pond," and other similar terminology.	mpb	
23	Spec 02056	Under section Part1, 1.1 A, add "buttress" if that is the intent. In addition delete bridge approach embankments if there are no bridges, or perhaps change to "structures", if that is the intent.	lah	



Comm ent #	Sheet/Pa ge/ Map/Tabl e #	Comments	Initi als	Revie w Actio n
24	Spec 02075	Under either 1.2 or 1.3 the Utah Department of Environmental Quality (DEQ) Regulations should either be related or referenced. In addition under section 3.8 E., acceptance of the liner should include the appropriate text relating to the liner acceptance by DEQ 3.8 E.	lah	
25	Spec 02075	3.1.A – What is placed below the geotextile? This also applies to 3.5 A.a., which says “the subgrade [is] prepared...according to specification.” Where is the subgrade specification?	lah	
26	Omission	Earthmoving equipment should be washed prior to accessing the site, i.e. be weed free. This might be included under Mob 01285, Environmental 01355, Embankment 02056, or Topsoil 02912.	lah	
		There may also be track-out facilities needed for vehicles leaving the site and accessing paved roads.	mpb	
27	Spec 02231	1.4 B - The definition of “deleterious” needs to be refined further.	lah	
28	Numerou s	On most, if not all, double-sided figures, the back side is upside down.	mpb	
29	SWPPP diagrams	Please identify the blue (wet) areas in the legend/key. Use terms to be consistent with above comment on Spec 01571 definitions, and label these features as such.	mpb	
30	Figures BC-01 through 05	Whereas the rest of the diagrams are plan or section/profiles, please identify on these sheets that these are oblique views. Also identify what direction the oblique is viewing toward, i.e., “Oblique view to the NW,” or provide a numeric bearing like “Oblique view bearing 315°.” The downward angle of the oblique is not necessary.	mpb	
31	Figures	On some figures, the “detention” structures are called “basins” while on others they are called “ponds.” Please be consistent and coordinate with the request for these to be defined in the previous Specs 01571 comment.	mpb	
32	Figures GR#-01	For the 60% spec package, please include hydrologic work-up calculations and include storage volumes for the storm water catchments shown on these diagrams.	mpb	
33	Omission	Briefly explain methods for determining terrace spacing and need.	pnb	
34	Work Plan	Identify the last dates for monitoring the leak detection system for each of the pads, report whether any leaks were detected in the leak detection systems during their monitoring life, and discuss accordingly.	pnb	



Comm ent #	Sheet/Pa ge/ Map/Tabl e #	Comments	Initi als	Revie w Actio n
35	Work Plan	Discuss the results of testing for arsenic and thallium on the proposed borrow sources, and implications for using that material for cover. It appears that arsenic above the planned clean-up standard was present in XRF samples taken from borrow areas 05 and 06.	pnb	
36	Work Plan, p 4- 3, 4.5	Explain the criteria for determining when to analyze a sample using the SPLP testing.	pnb	
37	Work Plan, p 5- 2, 5.2.1	Samples 385, 124, and 334 (at least) each have arsenic reported at levels higher than the reported maximum amount (693 mg As/kg soil) for depths between 12" and 36". Correct the text accordingly.	pnb	
38	Work Plan, p 5- 2, 5.2.2	Include the toxicity characteristic level for arsenic.	pnb	
39	Work Plan 5-2B	What are the thallium values east of the pile stockpile, in the floatation plant area?	lah	
40	Work Plan, Fig. 5-3B	Show the thallium values for the area southeast of the sulfide stockpile.	pnb	
41	Work Plan, p 6- 1, Ch. 6	Please explain how the polygons shown on Figures 6-1 through 6-8B were generated. Multiple maps show some XRF samples measuring over the 1000 mg/kg arsenic limit that are outside of areas planned for soil removal. For one example, a red marker northeast of the northeast of BC-03 isn't within an area marked for soil removal. To be consistent with the work plan, soil with 1000 mg/kg arsenic should be removed. If other sampling data (e.g. chemical analyses) or other criteria were used as the basis, please explain.	pnb	
42	Work Plan, Omission	Unless planned for in a separate project and document, the leach pad cover material should also be tested after it has been placed.	pnb	
43	Work Plan, Fig's. 6-1 - 6-7	It is recommended, but not required, that brighter colors are used to identify areas with arsenic, especially considering that the surface soils are where higher concentrations of arsenic are present, and since these can be easy to overlook.	pnb	